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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/757,718	01/13/2004	John Randall West	07464-0004	3834

25213 7590 07/03/2007  
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EXAMINER
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DAO, THUY CHAN

ART UNIT	PAPER NUMBER
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2192

MAIL DATE	DELIVERY MODE
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07/03/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

Application No.

10/757,718

Applicant(s)

WEST ET AL.

Examiner

Thuy Dao

Art Unit

2192

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 03 April 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☐ Claim(s) \_\_\_\_\_ is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-55 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

1. This action is responsive to the amendment filed on April 3, 2007.
2. Claims 1-55 have been examined.

### **Response to Amendments**

3. Per Applicants' request, claims 1, 49, and 55 have been amended.
4. The objection to drawings is withdrawn in view of Applicants' amendments.
5. The objection to claim 55 and the specification is withdrawn in view of Applicants' amendments.
6. The examiner notes that the Applicants add new limitations into claims 1 and 49 without pointing out the supporting text portions and/or figures.

For a proper prosecution record, the examiner respectfully requests the Applicants point out the supporting text portions and/or figures in the next communication with the Office.

### **Response to Arguments**

7. The Applicants are thanked for a thorough reply. Applicants' arguments have been considered but are moot in view of the new ground(s) of rejection.

### **Claim Objections**

8. Claim 36 is objected to because of minor informalities: acronym "XML" should be spelled out at the first appearance in claims.

Appropriate correction is required.

### **Claim Rejections – 35 USC § 112, second paragraph**

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. Claims 1-55 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

**Claim 1:**

Claim 1 recites the limitation "*validating generated test cases*" in line 10. There is insufficient antecedent basis for this limitation in the claim. The phrase is considered to read as - -validating [[generated]] test cases- -.

In line 5, it is unclear of what "test cases" being referred here.

In line 11, it is unclear of what "test cases" being converted to "test scripts".

Under the principles of compact prosecution, claim 1 has been examined as the Examiner anticipates the claims will be amended to obviate these 35 USC §112, second paragraph rejection. Claim 1, the phrase "*test cases*" is considered by the Examiner in all locations (i.e., not "generated" nor "converted").

The examiner respectfully requested the Applicants amended the claim to particularly point out and consistently set forth the limitations - -test cases- -.

**Claims 2-48:**

Claims 2-44 are rejected based on virtue of their dependency on the rejected claim 1.

**Claim 49:**

Claim 49 recites the limitation "*the logic using semantic*" in line 8. There is insufficient antecedent basis for this limitation in the claim. The phrase is considered to read as - -[[the]] logic using semantic- -.

**Claims 50-55:**

Claims 50-55 are rejected based on virtue of their dependency on the rejected claim 49.

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

12. Claims 1-55 are rejected under 35 U.S.C. 102(b) as being anticipated by "WinRunner 7.0 Tutorial", Mercury Interactive Corp., 2000 (art made of record, hereinafter "WinRunner").

**Claim 1:**

WinRunner discloses *a method for generating test cases that are converted to an abstract representation comprising:*

*using semantic analysis is used to convert the test cases to abstract representations (e.g., pp. 22-26, GUI Map as abstract representation);*

*providing rule-based generation of test cases from an abstract representation (e.g., pp. 36-50, Choosing a record mode; page 35, recording test in Context Sensitive Mode and associated rules; page 36, recording test in Analog Mode and associated rules) that includes*

*application states, external interaction sequences and input data of test cases from data stores (e.g., pp. 35-38, recording all mouse clicks and keyboard inputs, states of application under tests; starting Flight Reservation application with associated databases),*

*wherein each application state is a set of application objects associated with a set of attributes and their values (e.g., page 22, GUI objects; page 24, GUI objects and properties; pp. 72-80 changing GUI objects), or*

*represents a runtime snapshot of an application under test which defines a context of external interaction (e.g. pp. 39-42, starting the Flight Reservation application with runtime snapshots, checkpoints);*

*validating generated test cases (e.g., pp. 48-49, Verify Mode and Debug Mode); and*

*converting the test cases to test scripts* (e.g., pp. 42-43, Understanding the Test Script; page 166, Test Scripts in database).

**Claim 2:**

The rejection of claim 1 is incorporated. WinRunner also discloses *a data store is a relational database management system* (e.g., pp. 57-59).

**Claim 3:**

The rejection of claim 1 is incorporated. WinRunner also discloses *a data store is an XML database management system* (e.g., pp. 103-106).

**Claim 4:**

The rejection of claim 1 is incorporated. WinRunner also discloses *a data store is a file system* (e.g., page 40).

**Claim 5:**

The rejection of claim 1 is incorporated. WinRunner also discloses *an application state represents a runtime snapshot of application under test which defines the context of external interaction* (e.g., pp. 39-42).

**Claim 6:**

The rejection of claim 5 is incorporated. WinRunner also discloses *the application state includes a set of application objects, its attributes and attribute values* (e.g., pp. 22-24).

**Claim 7:**

The rejection of claim 5 is incorporated. WinRunner also discloses *the application states corresponding to a test case are arranged in a hierarchical manner* (e.g., page 166).

**Claim 8:**

The rejection of claim 1 is incorporated. WinRunner also discloses *the external interaction sequences represent events invoked by external agents on the application objects* (e.g., page 104).

**Claim 9:**

The rejection of claim 8 is incorporated. WinRunner also discloses *the external agents are human agents or other software agents* (e.g., pp. 104-106).

**Claim 10:**

The rejection of claim 8 is incorporated. WinRunner also discloses *the interaction sequencing includes flow control structures for capturing sequential, concurrent, looping and conditional interactions* (e.g., pp. 35-38).

**Claim 11:**

The rejection of claim 1 is incorporated. WinRunner also *the validation of generated test cases includes internal and external validation* (e.g., pp. 48-49).

**Claim 12:**

The rejection of claim 11 is incorporated. WinRunner also discloses *the internal validation ensures that the components of the test case definition, external interaction sequences and input data are consistent with each other and with an application object model* (e.g., pp. 36-50).

**Claim 13:**

The rejection of claim 12 is incorporated. WinRunner also discloses *an application object model is a metadata representation for modeling application under test* (e.g., pp. 35-38).

**Claim 14:**

The rejection of claim 13 is incorporated. WinRunner also discloses *the metadata representation includes object type definitions for application objects* (e.g., pp. 22-26).

**Claim 15:**

The rejection of claim 13 is incorporated. WinRunner also discloses *the metadata representation includes attribute definitions for each application object type* (e.g., pp. 22-24).

**Claim 16:**

The rejection of claim 13 is incorporated. WinRunner also discloses *the metadata representation includes definition of methods and events that are supported by each application object type* (e.g., pp. 72-80).

**Claim 17:**

The rejection of claim 13 is incorporated. WinRunner also discloses *the metadata representation includes definition of effects of events on an application state* (e.g., pp. 22-24).

**Claim 18:**

The rejection of claim 14 is incorporated. WinRunner also discloses *application object type definitions include additional categorization of each application object types into hierarchical, container and simple types* (e.g., pp. 39-42).

**Claim 19:**

The rejection of claim 18 is incorporated. WinRunner also discloses *the hierarchical object types are associated with an application state of its own, wherein application object types that can contain instances of other objects are termed container types* (e.g., pp. 36-50).

**Claim 20:**



The rejection of claim 19 is incorporated. WinRunner also discloses *the state associated with a hierarchical application object type is a modal application state or a nonmodal application state* (e.g., pp. 22-26).

**Claim 21:**

The rejection of claim 20 is incorporated. WinRunner also discloses *a modal application state restricts possible interactions to application object instances available within the current application state* (e.g., pp. 35-38).

**Claim 22:**

The rejection of claim 17 is incorporated. WinRunner also discloses *the effects of events on an application state capture one or more consequences of the event to the application state* (e.g., pp. 42-43).

**Claim 23:**

The rejection of claim 22 is incorporated. WinRunner also discloses *a consequence of an event is selected from, creation of a new object instance of a given type, deletion of an object instance of a given type, modification of attributes of an existing object instance and selection of an instance of an object type* (e.g., pp. 48-49).

**Claim 24:**

The rejection of claim 23 is incorporated. WinRunner also discloses *creation of a new instance of an object of type that is hierarchical results in creation of a new application state* (e.g., pp. 36-50).

**Claim 25:**

The rejection of claim 23 is incorporated. WinRunner also discloses *selection of an object instance of type that is hierarchical results in selection of the application state associated with that object instance* (e.g., pp. 42-43).

**Claim 26:**

The rejection of claim 11 is incorporated. WinRunner also discloses *the external validation validates the generated test case against the application metadata repository* (e.g., pp. 48-49).

**Claim 27:**

The rejection of claim 26 is incorporated. WinRunner also discloses *the application metadata repository contains definition of application objects and nature of their interactions within the application under test* (e.g., pp. 36-40).

**Claim 28:**

The rejection of claim 26 is incorporated. WinRunner also discloses *the external validation serves as a static verification test for the test cases* (e.g., pp. 39-42).

**Claim 29:**

The rejection of claim 26 is incorporated. WinRunner also discloses *the external validation increases productivity by pointing out invalid test cases* (e.g., pp. 42-46).

**Claim 30:**

The rejection of claim 26 is incorporated. WinRunner also discloses *the external validation increases productivity by pointing out inconsistencies in statically verifiable application behaviors* (e.g., pp. 39-44).

**Claim 31:**

The rejection of claim 1 is incorporated. WinRunner also discloses *the test scripts are test cases represented in a scripting language* (e.g., pp. 103-106).

**Claim 32:**

The rejection of claim 31 is incorporated. WinRunner also discloses *the scripting languages can be typed or untyped programming languages used for recording or authoring test cases* (e.g., pp., 36-44).

**Claim 33:**

The rejection of claim 1 is incorporated. WinRunner also discloses *providing rules for selection of components of test case definition, external interaction sequences and input data; rules for data driven test case generation* (e.g., pp. 46-56).

**Claim 34:**

The rejection of claim 33 is incorporated. WinRunner also discloses *the selection rules are specified using query languages* (e.g., pp., 32-36).

**Claim 35:**

The rejection of claim 34 is incorporated. WinRunner also discloses *the query language is Structured Query Language (SQL)* (e.g., page 166).

**Claim 36:**

The rejection of claim 34 is incorporated. WinRunner also discloses *the query language is XML Query (XQuery)* (e.g., pp. 103-106).

**Claim 37:**

The rejection of claim 34 is incorporated. WinRunner also discloses *the query language is Application Programming Interface (API) called from code written in a programming language* (e.g., page 29).

**Claim 38:**

The rejection of claim 34 is incorporated. WinRunner also discloses *the use of query languages allows test cases to be generated from live customer data* (e.g., pp. 35-38).

**Claim 39:**

The rejection of claim 33 is incorporated. WinRunner also discloses *the data driven test case generation involves composing the test case as dictated by the input data* (e.g., pp. 72-80).

**Claim 40:**

The rejection of claim 39 is incorporated. WinRunner also discloses *the availability of multiple datasets for the input data will result in generation of multiple test cases or external interaction sequences repeated within a loop control structure for each dataset* (e.g., pp. 36-38).

**Claim 41:**

The rejection of claim 39 is incorporated. WinRunner also discloses *the availability of multiple datasets for a portion of the input data will result in the interaction sequences corresponding to this portion of input data repeated within a loop control structure* (e.g., pp. 72-80).

**Claim 42:**

The rejection of claim 39 is incorporated. WinRunner also discloses *each element of input data can be flagged valid or invalid* (e.g., pp. 48-49).

**Claim 43:**

The rejection of claim 42 is incorporated. WinRunner also discloses *n the presence of validity flag in the input data that is different from the one corresponding the input data when the test cases was recorded or authored, results in the generator including appropriate interaction sequences for exception handling* (e.g., pp. 42-43).

**Claim 44:**

The rejection of claim 1 is incorporated. WinRunner also discloses *converting test case from internal representation to a scripting language through language mapping* (e.g., pp. 44-48).

**Claim 45:**

The rejection of claim 44 is incorporated. WinRunner also discloses *the mapping is used to map external interactions captured as events on application object to appropriate statements in the scripting language* (e.g., pp. 22-26).

**Claim 46:**

The rejection of claim 44 is incorporated. WinRunner also discloses *more than one language mappings are provided at the same time* (e.g., pp. 50-56).

**Claim 47:**

The rejection of claim 44 is incorporated. WinRunner also discloses *the generated test case are converted to more than one scripting language at the same time* (e.g., pp. 72-80).

**Claim 48:**

The rejection of claim 47 is incorporated. WinRunner also discloses *generating test cases in multiple scripting language allows generation of test scripts for multiple test execution environments* (e.g., pp. 52-56).

**Claim 49:**

WinRunner also discloses *a computer system, comprising:*  
*a processor: a memory coupled to the processor* (e.g., pp. 142-144),  
*the memory storing rule-based generation of test cases from an abstract representation* (e.g., pp. 36-50)  
*that includes application states, external interaction sequences and input data of test cases from data stores to produce test cases* (e.g., pp. 35-38);

*logic that validates the test cases (e.g., pp. 48-52);*

*logic for converting the test cases to test scripts (e.g., pp. 42-46; pp. 165-168),*

*logic using semantic analysis to convert the test cases to abstract representations that are one or more sets of application objects associated with a set of attributes and their values (e.g., pp. 22-26; pp. 36-50), or*

*represents a runtime snapshot of an application under test which defines a context of external interaction (e.g. pp. 22-26; pp.72-80; pp. 39-46).*

**Claim 50:**

The rejection of claim 49 is incorporated. WinRunner also discloses *the logic that validates the test cases provides that components of a test case definition, external interaction sequences and input data are consistent with each other and with an application object model (e.g., pp. 22-28).*

**Claim 51:**

The rejection of claim 49 is incorporated. WinRunner also discloses *the logic that validates the test cases is external validation logic (e.g., pp. 38-46).*

**Claim 52:**

The rejection of claim 51 is incorporated. WinRunner also discloses *the external validation logic includes validating a generated test case against an application metadata repository (e.g., pp. 32-40).*

**Claim 53:**

The rejection of claim 49 is incorporated. WinRunner also discloses *logic for providing rules for selection of components of test case definition, external interaction sequences and input data; wherein and the rules are data driven test case generation (e.g., pp. 20-26; pp. 72-84).*

**Claim 54:**

The rejection of claim 49 is incorporated. WinRunner also discloses *logic for providing data driven test case generation* (e.g., pp. 38-46).

**Claim 55:**

The rejection of claim 54 is incorporated. WinRunner also discloses *the logic for providing data driven test case generation includes composing the test case as dictated by the input data* (e.g., pp. 44-50).

**Conclusion**

13. Applicants' amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

14. Any inquiry concerning this communication should be directed to examiner Thuy Dao (Twee), whose telephone is (571) 272 8570. The examiner can normally be reached on the first Monday of the bi-week, and every Tuesday, Thursday, and Friday from 6:00AM to 6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Q. Dam, can be reached at (571) 272 3695.

The fax phone number for the organization where this application or proceeding is assigned is (571) 273 8300.

Any inquiry of a general nature of relating to the status of this application or proceeding should be directed to the TC 2100 Group receptionist whose telephone number is (571) 272 2100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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SUPERVISORY PATENT EXAMINER